Project Narrative File(s)

*** Mandatory Project Narrative File Filename:** 1234-2022.03.25_EPA.Air.Grant.Application_Pueblo.de.Sa

Add Mandatory Project Narrative File | Delete Mandatory Project Narrative File | View Mandatory Project Narrative File

To add more Project Narrative File attachments, please use the attachment buttons below.

Add Optional Project Narrative File | Delete Optional Project Narrative File | View Optional Project Narrative File

OMB Number: 2030-0020
Expiration Date: 06/30/2024

Preaward Compliance Review Report for All Applicants and Recipients Requesting EPA Financial Assistance

Note: Read Instructions before completing form.

I. A. Applicant/Recipient (Name, Address, City, State, Zip Code)

Name: Pueblo de San Ildefonso

Address: 02 Tunyo PO

City: Santa Fe

State: NM: New Mexico Zip Code: 87506

B. DUNS No. 1147860490000

II. Is the applicant currently receiving EPA Assistance? ☒ Yes ☐ No

III. List all civil rights lawsuits and administrative complaints pending against the applicant/recipient that allege discrimination based on race, color, national origin, sex, age, or disability. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

None

IV. List all civil rights lawsuits and administrative complaints decided against the applicant/recipient within the last year that allege discrimination based on race, color, national origin, sex, age, or disability and enclose a copy of all decisions. Please describe all corrective actions taken. (Do not include employment complaints not covered by 40 C.F.R. Parts 5 and 7.)

None

V. List all civil rights compliance reviews of the applicant/recipient conducted by any agency within the last two years and enclose a copy of the review and any decisions, orders, or agreements based on the review. Please describe any corrective action taken. (40 C.F.R. § 7.80(c)(3))

None

VI. Is the applicant requesting EPA assistance for new construction? If no, proceed to VII; if yes, answer (a) and/or (b) below.

☐ Yes ☒ No

a. If the grant is for new construction, will all new facilities or alterations to existing facilities be designed and constructed to be readily accessible to and usable by persons with disabilities? If yes, proceed to VII; if no, proceed to VI(b).

☐ Yes ☐ No

b. If the grant is for new construction and the new facilities or alterations to existing facilities will not be readily accessible to and usable by persons with disabilities, explain how a regulatory exception (40 C.F.R. 7.70) applies.

VII. Does the applicant/recipient provide initial and continuing notice that it does not discriminate on the basis of race, color, national origin, sex, age, or disability in its program or activities? (40 C.F.R 5.140 and 7.95) ☒ Yes ☐ No

a. Do the methods of notice accommodate those with impaired vision or hearing? ☒ Yes ☐ No

b. Is the notice posted in a prominent place in the applicant's offices or facilities or, for education programs and activities, in appropriate periodicals and other written communications? ☒ Yes ☐ No

c. Does the notice identify a designated civil rights coordinator? ☒ Yes ☐ No

VIII. Does the applicant/recipient maintain demographic data on the race, color, national origin, sex, age, or handicap of the population it serves? (40 C.F.R. 7.85(a)) ☒ Yes ☐ No

IX. Does the applicant/recipient have a policy/procedure for providing access to services for persons with limited English proficiency? (40 C.F.R. Part 7, E.O. 13166) ☒ Yes ☐ No

X. If the applicant is an education program or activity, or has 15 or more employees, has it designated an employee to coordinate its compliance with 40 C.F.R. Parts 5 and 7? Provide the name, title, position, mailing address, e-mail address, fax number, and telephone number of the designated coordinator.

N/A

XI. If the applicant is an education program or activity, or has 15 or more employees, has it adopted grievance procedures that assure the prompt and fair resolution of complaints that allege a violation of 40 C.F.R. Parts 5 and 7? Provide a legal citation or Internet Address for, or a copy of, the procedures.

N/A

For the Applicant/Recipient

I certify that the statements I have made on this form and all attachments thereto are true, accurate and complete. I acknowledge that any knowingly false or misleading statement may be punishable by fine or imprisonment or both under applicable law. I assure that I will fully comply with all applicable civil rights statutes and EPA regulations.

A. Signature of Authorized Official	B. Title of Authorized Official	C. Date
Raymond Martinez	Governor	03/23/2022

For the U.S. Environmental Protection Agency

I have reviewed the information provided by the applicant/recipient and hereby certify that the applicant/recipient has submitted all preaward compliance information required by 40 C.F.R. Parts 5 and 7; that based on the information submitted, this application satisfies the preaward provisions of 40 C.F.R. Parts 5 and 7; and that the applicant has given assurance that it will fully comply with all applicable civil rights statures and EPA regulations.

A. *Signature of Authorized EPA Official	B. Title of Authorized Official	C. Date

*** See Instructions**

Instructions for EPA FORM 4700-4 (Rev. 06/2014)

General. Recipients of Federal financial assistance from the U.S. Environmental Protection Agency must comply with the following statutes and regulations.
Title VI of the Civil Rights Acts of 1964 provides that no person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. The Act goes on to explain that the statute shall not be construed to authorize action with respect to any employment practice of any employer, employment agency, or labor organization (except where the primary objective of the Federal financial assistance is to provide employment). Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act provides that no person in the United States shall on the ground of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under the Federal Water Pollution Control Act, as amended. Employment discrimination on the basis of sex is prohibited in all such programs or activities. Section 504 of the Rehabilitation Act of 1973 provides that no otherwise qualified individual with a disability in the United States shall solely by reason of disability be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance. Employment discrimination on the basis of disability is prohibited in all such programs or activities. The Age Discrimination Act of 1975 provides that no person on the basis of age shall be excluded from participation under any program or activity receiving Federal financial assistance. Employment discrimination is not covered. Age discrimination in employment is prohibited by the Age Discrimination in Employment Act administered by the Equal Employment Opportunity Commission. Title IX of the Education Amendments of 1972 provides that no person in the United States on the basis of sex shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. Employment discrimination on the basis of sex is prohibited in all such education programs or activities. Note: an education program or activity is not limited to only those conducted by a formal institution. 40 C.F.R. Part 5 implements Title IX of the Education Amendments of 1972. 40 C.F.R. Part 7 implements Title VI of the Civil Rights Act of 1964, Section 13 of the 1972 Amendments to the Federal Water Pollution Control Act, and Section 504 of The Rehabilitation Act of 1973. The Executive Order 13166 (E.O. 13166) entitled; "Improving Access to Services for Persons with Limited English Proficiency" requires Federal agencies work to ensure that recipients of Federal financial assistance provide meaningful access to their LEP applicants and beneficiaries.

Items "Applicant" means any entity that files an application or unsolicited proposal or otherwise requests EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Recipient" means any entity, other than applicant, which will actually receive EPA assistance. 40 C.F.R. §§ 5.105, 7.25. "Civil rights lawsuits and administrative complaints" means any lawsuit or administrative complaint alleging discrimination on the basis of race, color, national origin, sex, age, or disability pending or decided against the applicant and/or entity which actually benefits from the grant, but excluding employment complaints not covered by 40 C.F.R. Parts 5 and 7. For example, if a city is the named applicant but the grant will actually benefit the Department of Sewage, civil rights lawsuits involving both the city and the Department of Sewage should be listed. "Civil rights compliance review" means any review assessing the applicant's and/or recipient's compliance with laws prohibiting discrimination on the basis of race, color, national origin, sex, age, or disability. Submit this form with the original and required copies of applications, requests for extensions, requests for increase of funds, etc. Updates of information are all that are required after the initial application submission. If any item is not relevant to the project for which assistance is requested, write "NA" for "Not Applicable." In the event applicant is uncertain about how to answer any questions, EPA program officials should be contacted for clarification. * Note: Signature appears in the Approval Section of the EPA Comprehensive Administrative Review For Grants/Cooperative Agreements & Continuation/Supplemental Awards form.

OMB Number: 4040-0004
Expiration Date: 12/31/2022

Application for Federal Assistance SF-424

* 1. Type of Submission:
- [ ] Preapplication
- [x] Application
- [ ] Changed/Corrected Application

* 2. Type of Application:
- [x] New
- [ ] Continuation
- [ ] Revision

* If Revision, select appropriate letter(s):

* Other (Specify):

* 3. Date Received: 03/23/2022

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier: 66.034

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name: Pueblo de San Ildefonso

* b. Employer/Taxpayer Identification Number (EIN/TIN): 85-0257748

* c. Organizational DUNS: 1147860490000

d. Address:

* Street1: 02 Tunyo PO
Street2:
* City: Santa Fe
County/Parish:
* State: NM: New Mexico
Province:
* Country: USA: UNITED STATES
* Zip / Postal Code: 87506-7258

e. Organizational Unit:

Department Name: Env. & Cultural Preservation

Division Name: DECP

f. Name and contact information of person to be contacted on matters involving this application:

Prefix: Mr.
* First Name: Raymond
Middle Name:
* Last Name: Martinez
Suffix:

Title: Director

Organizational Affiliation: Pueblo de San Ildefonso Dept of Environmental Preservation

* Telephone Number: 505-455-4127
Fax Number: 505-455-1120

* Email: rmartinez@sanipueblo.org

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

I: Indian/Native American Tribal Government (Federally Recognized)

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.034

CFDA Title:

Surveys, Studies, Research, Investigations, Demonstrations, and Special Purpose Activities Relating to the Clean Air Act

*** 12. Funding Opportunity Number:**

EPA-OAR-OAQPS-22-01

* Title:

Enhanced Air Quality Monitoring for Communities

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment | Delete Attachment | View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Enhancing Air Quality Monitoring at the Pueblo de San Ildefonso

Attach supporting documents as specified in agency instructions.

Add Attachments | Delete Attachments | View Attachments

Application for Federal Assistance SF-424

16. Congressional Districts Of:

* a. Applicant: NM-003 * b. Program/Project: NM-003

Attach an additional list of Program/Project Congressional Districts if needed.

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 11/01/2022 * b. End Date: 10/01/2025

18. Estimated Funding ($):

* a. Federal	485,466.15
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	485,466.15

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .

☐ b. Program is subject to E.O. 12372 but has not been selected by the State for review.

☒ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: Mr. * First Name: Christopher

Middle Name:

* Last Name: Moquino

Suffix:

* Title: Governor

* Telephone Number: 505-455-2273 Fax Number: 505-455-4153

* Email: governor@sanipueblo.org

* Signature of Authorized Representative: Raymond Martinez * Date Signed: 03/23/2022

Other Attachment File(s)

*** Mandatory Other Attachment Filename:** 1235-2022.03.25_EPA.Air.Grant.Application_Pueblo.d

Add Mandatory Other Attachment | Delete Mandatory Other Attachment | View Mandatory Other Attachment

To add more "Other Attachment" attachments, please use the attachment buttons below.

Add Optional Other Attachment | Delete Optional Other Attachment | View Optional Other Attachment

Manifest for Grant Application # GRANT13579202

Grant Application XML file (total 1):

1. GrantApplication.xml. (size 25152 bytes)

Forms Included in Zip File(total 6):

1. Form ProjectNarrativeAttachments_1_2-V1.2.pdf (size 16039 bytes)

2. Form SF424_3_0-V3.0.pdf (size 24176 bytes)

3. Form SF424A-V1.0.pdf (size 23335 bytes)

4. Form EPA4700_4_3_0-V3.0.pdf (size 22597 bytes)

5. Form OtherNarrativeAttachments_1_2-V1.2.pdf (size 16014 bytes)

6. Form EPA_KeyContacts_2_0-V2.0.pdf (size 37298 bytes)

Attachments Included in Zip File (total 2):

1. ProjectNarrativeAttachments_1_2 ProjectNarrativeAttachments_1_2-Attachments-1234-2022.03.25_EPA.Air.Grant.Application_Pueblo.de.San.Ildefonso_Project.Narrative_Final.pdf application/pdf (size 414343 bytes)

2. OtherNarrativeAttachments_1_2 OtherNarrativeAttachments_1_2-Attachments-1235-2022.03.25_EPA.Air.Grant.Application_Pueblo.de.San.Ildefonso_QAP.pdf application/pdf (size 113535 bytes)

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 02/28/2022

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Task 1a: Analysis of existing intellus Air data		$	$	$ 59,482.60	$	$ 59,482.60
2. Task 1b: Ambient air PM sampling for airborne radionuclides				224,054.60		224,054.60
3. Task 2: PurpleAir Sensor network				201,528.95		201,528.95
4.						
5. Totals		$	$	$ 485,066.15	$	$ 485,066.15

Standard Form 424A (Rev. 7- 97)
Prescribed by OMB (Circular A -102) Page 1

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY (1)	(2)	(3)	(4)	Total (5)
	Task 1a: Analysis of existing intellus Air data	Task 1b: Ambient air PM sampling for airborne radionuclides	Task 2: PurpleAir Sensor network	N/A	
a. Personnel	$ 25,182.14	$ 50,506.56	$ 53,808.77	$ 0.00	$ 129,497.47
b. Fringe Benefits	7,412.87	14,867.61	15,839.69	0.00	38,120.17
c. Travel	0.00	0.00	0.00	0.00	0.00
d. Equipment	0.00	27,000.00	0.00	0.00	27,000.00
e. Supplies	0.00	1,100.00	14,100.00	0.00	15,200.00
f. Contractual	21,000.00	117,972.00	89,000.00	0.00	227,972.00
g. Construction					
h. Other		800.00	16,200.00		17,000.00
i. Total Direct Charges (sum of 6a-6h)	53,595.01	212,246.17	188,948.46	0.00	$ 454,789.64
j. Indirect Charges	5,887.59	11,808.43	12,580.49	0.00	$ 30,276.51
k. TOTALS (sum of 6i and 6j)	$ 59,482.60	$ 224,054.60	$ 201,528.95	$ 0.00	$ 485,066.15
7. Program Income	$	$	$	$	$

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Prescribed by OMB (Circular A -102) Page 1A

SECTION C - NON-FEDERAL RESOURCES

(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e)TOTALS
8. Task 1a: Analysis of existing intellus Air data	$	$	$	$
9. Task 1b: Ambient air PM sampling for airborne radionuclides				
10. Task 2: PurpleAir Sensor network				
11.				
12. TOTAL (sum of lines 8-11)	$	$	$	$

SECTION D - FORECASTED CASH NEEDS

	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	$	$	$	$	$
14. Non-Federal	$				
15. TOTAL (sum of lines 13 and 14)	$	$	$	$	$

SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT

(a) Grant Program	FUTURE FUNDING PERIODS (YEARS) (b)First	(c) Second	(d) Third	(e) Fourth
16. Task 1a: Analysis of existing intellus Air data	$	$	$	$
17. Task 1b: Ambient air PM sampling for airborne radionuclides				
18. Task 2: PurpleAir Sensor network				
19.				
20. TOTAL (sum of lines 16 - 19)	$	$	$	$

SECTION F - OTHER BUDGET INFORMATION

21. Direct Charges:

22. Indirect Charges:

23. Remarks:

EPA KEY CONTACTS FORM

OMB Number: 2030-0020
Expiration Date: 06/30/2024

Authorized Representative: *Original awards and amendments will be sent to this individual for review and acceptance, unless otherwise indicated.*

Name: Prefix: Mr. First Name: Christopher Middle Name:
Last Name: Moquino Suffix:
Title: Governor
Complete Address:
Street1: 02 Tunyo PO
Street2:
City: Santa Fe State: NM: New Mexico
Zip / Postal Code: 87506-7264 Country: USA: UNITED STATES
Phone Number: 505-455-2273 **Fax Number:** 505-455-4153
E-mail Address: governor@sanipueblo.org

Payee: *Individual authorized to accept payments.*

Name: Prefix: Mrs. First Name: Sharon Middle Name:
Last Name: Serrano Suffix:
Title: Contracts Administrator
Complete Address:
Street1: 02 Tunyo PO
Street2:
City: Santa Fe State: NM: New Mexico
Zip / Postal Code: 87506-7264 Country: USA: UNITED STATES
Phone Number: 505-455-4141 **Fax Number:** 505-455-1359
E-mail Address: sserrano@sanipueblo.org

Administrative Contact: *Individual from Sponsored Programs Office to contact concerning administrative matters (i.e., indirect cost rate computation, rebudgeting requests etc).*

Name: Prefix: Mr. First Name: Raymond Middle Name:
Last Name: Martinez Suffix:
Title: Director
Complete Address:
Street1: 02 Tunyo Po
Street2:
City: Santa Fe State: NM: New Mexico
Zip / Postal Code: 87505-7264 Country: USA: UNITED STATES
Phone Number: 505-4455-4127 **Fax Number:** 505-455-1120
E-mail Address: rmartinez@sanipueblo.org

EPA KEY CONTACTS FORM

Project Manager: *Individual responsible for the technical completion of the proposed work.*

Name: Prefix: Mr. First Name: Raymond Middle Name:

Last Name: Martinez Suffix:

Title: Director

Complete Address:

Street1: 02 Tunyo PO

Street2:

City: Santa Fe State: NM: New Mexico

Zip / Postal Code: 87506 Country: USA: UNITED STATES

Phone Number: 505-455-4127 **Fax Number:** 505-455-1120

E-mail Address: rmartinez@sanipueblo.org

Quality Assurance Statement

1. Key Personnel

Michael Chacón will be responsible for the quality assurance (QA) and quality control (QC) aspects of the project. Mr. Chacón is DECP's Technical Reviewer/Quality Assurance Manager with over 25 years' experience in the environmental field.

2. General Approach for Conducting Quality Assurance

To ensure QA for all projects, we generally develop a comprehensive quality assurance project plan (QAPP) in accordance with EPA guidance (U.S. EPA QA/G-5, 2002). The project-specific QAPP includes details on (1) project management procedures, objectives, and approaches; (2) methods for generating data, including methods for documenting field and laboratory results, and collecting sampled for analysis; (3) project assessment and oversight; (4) data validation and assessment of data usability; and (5) Chain of custody and logistical procedures related to conducting field sampling and shipping samples to an analytical laboratory. In addition to the project-specific QAPP, we also develop standard operating procedures (SOPs) and a sampling and analysis plan (SAP) tailored to the meet the project's goals and objectives.

The project QAPP, SOPs, and SAP are reviewed by the DECP QA/QC manager, Mr. Chacón, and are not implemented until his approval. Once the QAPP, SOPs, and SAP are approved, the project team is required to review and sign these documents to ensure that they understand the QA/QC requirements for the project. The project team will also receive regular training on the QA/QC procedures to ensure consistency between team members.

3. Determining Acceptable Data Quality

We generally follow the specifications listed in EPA's Requirements for QAPPs (U.S. EPA, 2001) and addressed in EPA's Guidance for QAPPs (U.S. EPA, 2002) to determine acceptable data quality. Data quality requirements for analytical samples such as QC limits on precision, accuracy, bias, and detection limits, will be specified in the laboratory work plans when applicable.

Data quality can be characterized in terms of precision, bias, accuracy, representativeness, completeness, comparability, and sensitivity. These characteristics are termed data quality indicators (DQIs). Our general DQI approach is as follow:

- **Precision:** To ensure precision, we prepare a project-specific QAPP, SOPs, and SAP that will ensure consistency between collection efforts. We use the same instrumentation during the course of a project and periodically collect field duplicates to assess the precision the collection methods and the analytical methods. Suitable reference materials are used to measure long-term precision when available.
- **Bias:** To reduce concerns about bias, we work ensure the appropriate QC samples are integrated into the study design. These may include, but are not limited to, field blanks, field duplicates, matrix-spike samples, and reference samples.
- **Accuracy:** To assess accuracy, we ensure the use of project-specific QAPP, SOPs, and SAP; measure long-term precision using reference materials; and include field and laboratory QA/QC samples in our projects.
- **Representativeness:** To ensure the representativeness of physical samples, our project-specific QAPP, SOPs, and SAPs are prepared in accordance with guidelines and "best practices" established by the state or EPA. Sample are collected and analyzed following these guidelines.

- **Completeness:** We evaluate data completeness by determining the proportion of data specified in the SAP that are determined to be valid. If sufficient data are not valid to meet the project goals and objectives, then additional sampling efforts may be required.
- **Comparability:** To ensure that one data set can be evaluated in relationship to another, we collect and handle samples according to the project-specific QAPP, SOPs, and SAP. For analytical samples, we ensure that the analytical laboratory has program-defined methods, detection limits, and bias and precision requirements.
- **Sensitivity:** We consider analytical sensitivity when determining the most appropriate analytical methods and instruments for our studies. We consider method detection and laboratory quantitation limits to ensure that the data that are being collected for a project are suitable to meet the project goals and objectives.

References

U.S. Environmental Protection Agency. 2001. EPA *Requirements for Quality Assurance Project Plans* (QA/R-5) (EPA/240/B-01/003). Washington, DC: Office of Environmental Information.

U.S. Environmental Protection Agency. 2002. EPA *Guidance for Quality Assurance Project Plans* (QA/R-5) (EPA/240/R-02/009). Washington, DC: Office of Environmental Information.

Cover Page

Project title: Enhancing air quality monitoring at the Pueblo de San Ildefonso

Applicant Information:

Department of Environmental and Cultural Preservation; 02 Tunyo Po, Santa Fe, New Mexico, 87506

DUNS: 1147860490000

Raymond Martinez, Director; 505.455.2273 ext. 127; rmartinez@sanipueblo.org

Set-Aside: Tribal Set-aside

Description of Applicant Organization: The Department of Environmental and Cultural Preservation (DECP) aims to protect and preserve the natural environment and the cultural resources of the Pueblo, and quantitatively and qualitatively assess risks to the health and welfare of the Tribal Community, including the review and oversight of air quality.

Project Partners: New Mexico Environment Department

Project Location: Pueblo de San Ildefonso

Air Pollutant Scope: PM, radioactive materials

Budget Summary:

EPA Funding Requested	Total Project Cost
$485,466.15	$485,466.15

Project Period: November 2022 – October 2025

Short Project Description: Our Pueblo members have voiced concerns about air quality because of our proximity to LANL, a potential source of exposure to radionuclides and other air contaminants, and because of increased wildfire events that result in greater exposure to wildfire smoke. Pueblo members are exposed to degraded air quality to a greater extent than the public because of extended periods of time spent outdoors engaged in our traditional and cultural practices. Further, we have limited ability to avoid the contamination because of our place-based culture, fixed reservation boundaries and socio-economic disparities.

This project will establish an air quality monitoring program to understand air quality risks to our community's health and welfare. We will install ambient air samplers to measure levels of airborne radionuclides emanating from LANL operations and install a PurpleAir sensor network to monitor dust and smoke concentrations near the Pueblo housing areas. This project will better characterize the magnitude and extent of the air quality problems. Armed with these data, we will incorporate project findings into a cumulative impact assessment based on greater exposure pathways associated with our Tribal Lifeways and develop data-driven strategies to minimize exposure and protect the health of the community.

Work Plan

1. Project Summary and Approach

The Pueblo de San Ildefonso (Pueblo), located in northern New Mexico, faces potential human health impacts due to its proximity to the Los Alamos National Lab (LANL) and due to greater exposure to wildfire smoke as a results of increased wildfire seasons. Our Pueblo members may be disproportionately affected by both air quality concerns because we spend greater time outdoors engaging in our traditional cultural practices, compared to the public. Moreover, as a place-based culture with fixed reservation boundaries, and facing socio-economic disparities, our people are also likely to be more exposed and more vulnerable to the adverse health effects of degraded air quality. A first step in developing solutions is to fully understand the magnitude and extent of the problem. Hence, the purpose of this project is to collect sufficient air quality data to (1) inform our community about the health risks they may face due to degraded air quality, and (2) inform development of mitigation strategies to minimize the risk.

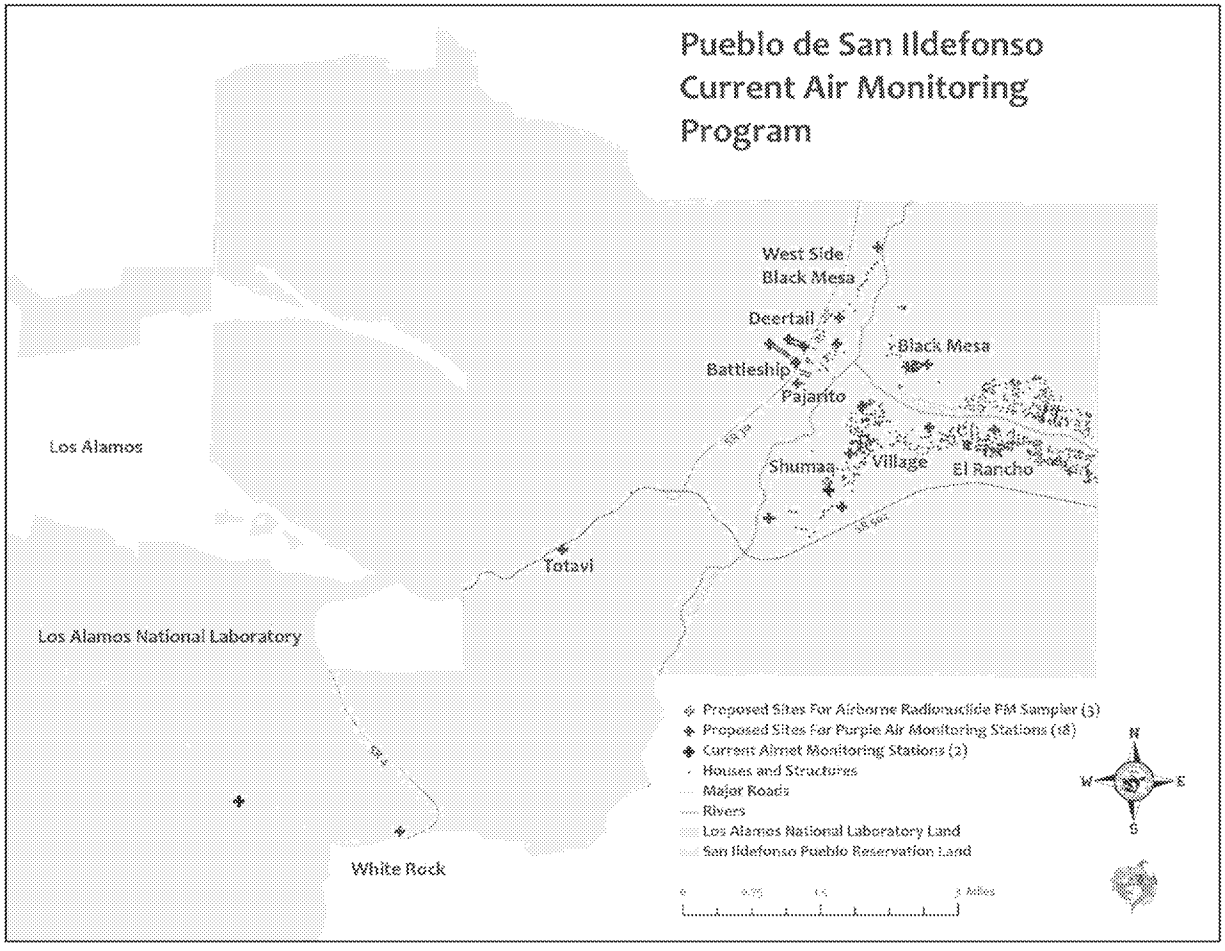

Figure 1. Map of the existing and proposed air sampling locations around the Pueblo de San Ildefonso

The Pueblo is adjacent and downwind of LANL. Historical laboratory activities, including development of the atomic bomb, left legacy radionuclides and other contaminants in the local environment. LANL maintains and operates 41 ambient air quality monitoring stations (AIRNET) to measure radioactive air

emissions.[1] The AIRNET stations are located onsite, in regional locations, and in adjacent communities. However, only two AIRNET stations are located within the Pueblo's boundaries (Figure 1). The limited number of AIRNET stations are insufficient in fully characterizing the airborne radionuclide exposure near the Pueblo residences, and local community members have concerns about this exposure originating from LANL. Therefore, additional ambient air samplers are needed in residential areas of the Pueblo to allow community members to better understand any air quality-related health concerns and integrate the data into our ongoing Tribal-Lifeway-based Tribal Risk Assessment (TRA). Task 1 describes the approach to install ambient air samplers for improved monitoring of airborne radionuclides, analyze the data, and report and communicate the results.

In addition to airborne radionuclide activity from LANL, the Pueblo is also facing the changing climate conditions of the Southwest, including more frequent and/or intense incidences of wildfires. Biomass in forested areas can efficiently collect radionuclides through aerosol capture, absorption, and can retain high levels of radiation over a long period. During wildfires, these radionuclides can get re-injected in air and present a significant inhalation hazard. Fine particulate matter (PM) from wildfire and residential woodburning smoke and dust from unpaved road and wind-blown regional transport can degrade air quality further, and exposure to PM can cause or exacerbate respiratory or cardiac illnesses. The Pueblo does not currently monitor for PM and understanding the levels of PM on the Pueblo is of great concern to members of the Pueblo. Task 2 describes the approach to install a PurpleAir sensor network to monitor PM on the Pueblo, analyze the data, and report and communicate the results.

Task 1: Airborne Radionuclide Monitoring

Task 1 Project Significance

One purpose of the AIRNET surveillance program is to measure levels of airborne radiological materials to compare to environmental compliance standards. As part of environmental compliance, LANL provides annual environmental reports that compare airborne radionuclide activity to the U.S. Environmental Protection Agency (EPA) concentration levels for environmental compliance, and the LANL reports show that concentrations of airborne radioactive material measured in ambient air samples are generally below these levels. However, localized wildfires that burn contaminated vegetation could result in elevated airborne radioactive material. Our community would like to better understand our direct exposure to levels of radionuclide airborne activity, particularly near our housing areas, and what implications these levels may have for human health. The location of the current AIRNET stations, and the current analyses provided by LANL in the environmental reports do not provide sufficient information for members of the Pueblo to understand potential health concerns associated with exposure to airborne radionuclides. The implementation of Task 1 will help fill this very important data gap. These data will also be incorporated into our ongoing Tribal-Lifeway-based cumulative impact analysis (see Section 3).

Task 1 Description and Approach

In this task, the Department of Environmental and Cultural Preservation (DECP) will (1) analyze existing Intellus air data to understand data trends and gaps and (2) develop a monitoring network to collect ambient air samples, following the sampling and analysis protocol adopted by LANL, to monitor exposure to airborne radionuclides and send those samples to a commercial laboratory for radiochemical analysis.

Analysis of existing Intellus air data

To better understand the extent of radioactivity exposure to Pueblo residents from ambient airborne radionuclides and the associated health impacts, our team will analyze long-term AIRNET,

1 These AIRNET stations sample particulate matter continuously to measure airborne radionuclides concentrations, including isotopes of uranium, plutonium, and americium, and gross radioactivity, such as gross alpha, gross beta, and gamma ray radiation from radionuclides.

meteorological and radionuclide data available in the Intellus database[2] from stations located on the Pueblo, on LANL near the Pueblo, and regional stations (i.e., background). We will focus our analysis on airborne radionuclides of most concern including, ^{3}H, Am-241, Pu-238,239,240, and U-234, 235, 238. We will compare data trends to applicable environmental and health standards. We will also investigate contaminant trends associated with discrete events such as wildfires and dust storms. We will look for correlations between meteorological data and radionuclide analyte concentrations. The anticipated outcome of this subtask is the generation of meaningful, long-term, statistical data on radioactive air contaminants over and around the Pueblo, which could provide valuable insights on associated health impacts. This information will be shared with our community and Tribal Council. In addition, we will share the findings with our partners, the State of New Mexico, and other scientists and environmental and public health experts for interpretation of burden on the public health in the future.

Ambient air sampling for airborne radionuclides

We will also establish an ambient air sampling network for airborne radionuclides that will improve the characterization of atmospheric radionuclide exposure near the Pueblo residences. To collect ambient air particulate samples, we propose using Tisch Environmental Hi-Volume Polyurethane Foam PLUS Sampler (or high-volume sampler). We propose using the high volume sampler for several reasons, including (1) FRM compliant sample collection methods, (2) comparable flow rate with LANL's AIRNET samplers and accurate flow rate calculation (3) robust design with portability, (4) additional sampling capability for toxic VOCs, (5) Digital timer and automatic calibration, (6) temperature, barometric pressure, total ambient and standard flow rate recording capabilities, (7) data logger and easy data retrieval, and (8) microcontroller based configurable flow rate and programmable sampling schedule.[3]

We will site two high-volume samplers in residential neighborhoods with secure locations and electrical connections and a third sampler collocated with one of the existing AIRNET monitoring stations at the Pueblo's transfer station for comparability of methods and data collected by our approach with the ones used by LANL (Figure 1). The high-volume samplers will be configured for collection of total suspended particulate (TSP) at the flow rate of 125 LPM. Samples will be collected continuously for a period of two years from March 2023 through February 2025. The DECP environmental field technician, will collect the samples as part of his regular duties collecting LANL air filters. He will collect sample filters on a biweekly basis, following standard LANL guidelines on filter removal, replacement, and collection. The samples will be sent to an analytical laboratory quarterly for gamma-emitting nuclide analysis, gross alpha and gross beta measurements, and radionuclide analysis. Specifically, Cs-137, Sr-90, U-238, Ra-226, and Pu-239/240, radionuclides that we identified drive excess cancer risk in our TRA.

Our team will analyze the sample data as described above. We will share the findings with our Pueblo community, Tribal Council, and our partners. We will also integrate this data into our TRA (see Section 3), which examines the cumulative impacts of multiple exposure pathways based on the Tribal Lifeways of the Pueblo.

Task 2: PurpleAir Sensor Network

Task 2 Project Significance

In addition to airborne radionuclide activity from LANL, the Pueblo is also facing changing climate conditions, including increasing average temperatures, more frequent and/or intense incidences of wildfires, extreme heat, and droughts.[4] PM from wildfires can degrade air quality in nearby areas and at

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2 Intellus New Mexico is a publicly accessible database that stores integrated records of LANL's environmental monitoring and sampling data.

3 Although we propose the PUF PLUS sampler, we will continue to evaluate sampling instruments for suitability at the sites, cost-effectiveness, and comparability with LANL methodologies.

4 USGCRP. 2018. Southwest. Chapter 25 in *Impacts, Risks, and Adaptation in the United States: Fourth National Climate Assessment, Volume II*, D.R. Reidmiller, C.W. Avery, D.R. Easterling, K.E. Kunkel, K.L.M. Lewis, T.K. Maycock, and B.C. Stewart (eds.).

broad geographic scales, and multiple studies have shown that wildfire-associated increases in PM can cause or exacerbate respiratory or cardiac illnesses.[5] In areas near contaminated sites (such as the Pueblo), wildfires can burn vegetation and soils that are sequestering hazardous contaminants, which can lead to contaminant mobilization and transport offsite via ash or PM (i.e., "dust").[6,7] Since the Pueblo does not currently monitor for PM, the implementation of Task 2 will enable the Pueblo to better understand ambient PM concentrations and the associated health risks of PM exposure in residential areas.

Task 2 Project Description and Approach

The major sources of particulate pollution on the Pueblo are wildfire and residential woodfire smoke, as well as unpaved and wind-blown dust. Under this task, we are proposing to establish a network of low cost, low maintenance PurpleAir sensors. These sensors use laser particle counters to obtain particle counts of PM_1, $PM_{2.5}$, and PM_{10}, and convert them to respective mass concentrations using in-built algorithms, which can be used as proxies to dust and smoke pollution.

We will work closely with our community to select suitable locations to install outdoor and indoor PurpleAir sensors in each of our housing areas. We propose installing 18 PurpleAir sensors across the Pueblo's residential area, including at least one outdoor and one indoor sensor in each of our residential neighborhoods (Figure 1). The exact locations of sensors will also depend on the availability of electricity and a Wi-Fi signal. For residential areas with no existing internet connectivity, we will deploy mobile hotspots to facilitate Wi-Fi connectivity for PurpleAir sensors to have real-time monitoring at these locations. Other considerations for siting PurpleAir sensors include unobstructed air flow, availability of a shady place, and proper distance from major PM sources, such as a chimney, BBQ, or wood stoves. We recognize that PurpleAir sensors are laser particle counters that do not provide regulatory-grade information. However, we selected them for this project because they are inexpensive, low maintenance, easy for the community to operate, and provide useful, real-time information, on a relative scale. To help inform us of potential data accuracy issues and potential correction methods applicable to the PurpleAir data, we would also work with our partner, the New Mexico Environment Department (NMED) Air Quality Bureau, to collocate two PurpleAir sensors at their Santa Fe Airport air quality station to compare PM data collected by PurpleAir with the Bureau's Met-One BAM-1020 PM $PM_{2.5}$ sampler (see Section 2.1).

Once deployed, the PurpleAir sensors will collect and report real-time PM data using a dashboard available to the public and our Pueblo residents. This information will allow our Pueblo community to identify and understand trends in PM from local sources. Data from these sensors can be a valuable tool for enhancing our understanding of air quality impacts from dust and wildfire smoke and demonstrating the localized nature of smoke plumes. The data from the indoor sensors can provide insight on PM trends associated with activities, such as smoking, wood burning stoves, or carpet vacuuming. We anticipate continuous, real-time monitoring using these sensors from February 2023 through October 2025 (see Section 4.3). If there is no sensor degradation, we anticipate PurpleAir sensors will operate beyond this time period as associated operational costs are minimal. In addition to providing real-time dashboard data to our community, we will also use the data collected by the PurpleAir sensors to conduct preliminary analyses on air quality trends, taking into account both EPA correction factors and correction factors that may result from the collocation of the PurpleAir sensors and NMED's air quality station at the Santa Fe airport. The goal of installing PurpleAir sensors on the Pueblo is to provide valuable real-time air quality information to member of the Pueblo and to provide PM monitoring data where it is currently not available.

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5 Cascio, W.E. 2018. Wildland fire smoke and human health. *Science of the Total Environment* 624:586–595.

6 Whicker, J.J., J.E. Pinder III, and D.D. Breshears. 2006a. Increased wind erosion from forest wildfire: implications for contaminant-related risks. *Journal of Environmental Quality* 35(2):468–478.

7 Whicker, J., D. Baltz, W.F. Eisele, O.F. Hart, M.W. McNaughton, and A.A. Green. 2012. Operational experience of continuous air monitoring of smoke for 239Pu during a wildfire. *Health Physics* 103: S161–S168.

Task findings will be shared with our community and Tribal Council, as well as with our partners, the State of New Mexico, and other scientists and environmental and public health experts for interpretation of burden on the public health in the future. We will also integrate this data into our TRA to examine the cumulative impacts of multiple exposure pathways based on the Tribal Lifeways of the Pueblo (see Section 3).

2. Community Involvement

Our approach gives us a unique opportunity to involve our residents in the data collection process and to learn more about air quality and actions we can take to protect our health and environment. Section 2.1 describes our community partnerships with the State of New Mexico's Department of Environmental Protection, where Section 2.2 describes our Pueblo community partnerships and engagement activities.

2.1 Community Partnerships

We have a strong government-to-government working relationships with the State of New Mexico. We are currently working with the co-chairs of the New Mexico Climate Change Tasks Force. including the NMED, to confront climate change in our community and across the state. In this project, we would partner with NMED Air Quality Bureau to collaborate on air quality data collection and data sharing. NMED has an air quality station at the Santa Fe Airport that collects Ozone (O3) and PM ($PM_{2.5}$) data. As part of this project, we would collocate two PurpleAir sensors at that site for comparability of PM data collected by PurpleAir with the Bureau's Met-One BAM-1020 $PM_{2.5}$ sampler. Using the BAM-1020 as an air quality reference monitor would allow us to evaluate the performance of the PurpleAir sensor and, if necessary, calibrate the PurpleAir sensors in this study to improve our air quality data. We would also meet periodically with the NMED for data sharing. Data sharing compliments NMED air collection information with additional information about air quality issues experienced in rural areas of the state and provides our staff with and understanding of regional air quality data that we can share with our community. This partnership is beneficial to both parties and continues to build a stronger government-to-government working relationship.

2.2 Community Engagement

Community engagement is a critical component for all our work, and community concerns about air quality is what is driving the need to conduct this study. In our climate planning process, for example, we worked closely with our community – including elders, youth, resources managers, and Tribal Council – to identify the key aspects of Pueblo life that are critical to preserve and protect and developed a vision for the community. Through the engagement process, the community indicated that air is a sacred space that is critical to the health of the community and to future generations, and that climate change is already negatively affect our air quality. Therefore, our community ranked clean air as a high climate risk vulnerability, and identified adaptation actions, including the establishment of an air quality monitoring system, to reduce our community's vulnerability to air pollution.

Throughout the project, we will continue to engage with the community. Prior to installing the proposed air monitoring network, we will work closely with our Tribal Council and Pueblo residents to select locations for the radionuclide samplers and PurpleAir sensors and develop a dashboard to report the results back to the community. We will do this by attending Tribal Council meetings, monthly Senior zoom calls with elders, youth council meetings, and other community forums that will allow us to engage and receive input from as many sectors of the community as possible. Once the monitoring network is established, the community can view real-time PM results from the PurpleAir sensors; this will include information about concerns associated with air quality index levels. We will use the dashboard, as well as DECP newsletters and Pueblo de San Ildefonso Bulletins to educate the community about air quality issues affecting our community and provide actions community members can take to protect their health, such as adding indoor filters, fans, sealing homes to reduce smoke intrusion, and limiting ambient air exposure during unhealthy pollution conditions. At the conclusion of the study, we will present study

results at both a Tribal Council meeting and a community-wide meeting. We will also integrate this data into our TRA. Our TRA examines the cumulative impacts of multiple exposure pathways based on the Tribal Lifeways of the Pueblo. Using this information, we can assess whether air is a major driver of health risk for the community, which will then inform whether to prioritize mitigation actions to reduce air exposure in the Pueblo's overall approach to reduce health impacts.

3. Environmental Justice and Underserved Communities

The Pueblo is disproportionately affected by pollution, it is the only Tribal Nation that directly shares a boarder with an operating DOE site. Since operations began in 1943 with the development and testing of nuclear weapons, activities at LANL have resulted in the release of radiological and other hazardous contaminants into the environment and onto Pueblo lands (U.S. DOE, 2021).

Members of the Pueblo are exposed to airborne pollutants and contaminants to a greater extent than the general public, because they spend extended periods of time outdoors when engaged in traditional and cultural practices. Members of the Pueblo hesitate to continue their traditional practices because of their concerns about the impacts and threats from LANL contaminants. To better understand the potential human health risks from LANL contamination to members of the Pueblo, we recently conducted a TRA. The TRA considers many of the relevant contaminant exposure pathways for a member of the Pueblo, including exposure to airborne contaminants and evaluates risk for individuals practicing a traditional Tribal lifeway. The results of TRA showed health risks to members of the Pueblo associated with radionuclide exposure from multiple exposure pathways. Data obtained from Task 1 will augment the TRA and help members of the Pueblo better understand the potential health concerns associated with exposure to airborne radionuclides near the Pueblo residences. We would like to integrate our TRA results into a cumulative impact assessment that includes non-contaminant stressors. These non-contaminant stressors could be explicitly taken into consideration when evaluating risk-mitigation actions and cleanup alternatives for our lands.

The Pueblo is also facing changing climate conditions, that can be associated with increased exposure to PM. While exposure to PM can lead to negative physical health effects, PM exposure can also impact cultural and spiritual health. Increased requirements to shelter in place to avoid poor air quality not only limits the ability to engage in cultural practices but can be very isolating for members of the Pueblo and can cause negative disruptions to family and community relationships. Installing PurpleAir sensors (Task 2) near the Pueblo residences will provide real-time localized EPA air quality index results that can be associated with localized recommended actions to limit PM exposure. Localized air quality recommendations may limit the amount of time individuals spend indoors compared to the time spent indoors following broader more general air advisories to help promote the physical, cultural, and spiritual health of members of the Pueblo.

In general, this project seeks to improve the Pueblo's understanding of the disproportionate adverse effects of air quality. The project would be led and implemented by the Pueblo de San Ildefonso Indian Tribe. As such, the project would be Tribal led and driven by tribal priorities for air quality monitoring.

4. Environmental Results

4.1 Expected Project Outputs and Outcomes

This project is directly related to the EPA's 2022-2026 Strategic Plan; in particular, the project aims to improve air quality and reduce localized pollution and health impacts to our Pueblo, a marginalized community that has been overburdened with air pollution and other environmental hazards (Objective 4.1). The overall project objective is to establish an air quality monitoring program to understand the air quality risks to the health and welfare of our community. Specifically, we will install ambient air PM samplers to characterize airborne contaminants, including radiological ones, and install a PurpleAir sensor

network to monitor PM exposure near the Pueblo housing areas. To meet this project objective, we have identified several quantitative and qualitative project outputs and outcomes.

As outlined in Table 1, our proposed project has five categories of expected outputs that will be measurable during the funding period. For each category, we provide details on the specific outputs expected that will lead to short-, intermediate-, and long-term outcomes. Specifically, the outputs will increase community knowledge about air pollution, drive behavior change to minimize the health risks associated with exposure to poor air quality, and ultimately promote improved air quality thorough community education and action. These expected outcomes meet EPA's objectives by (1) leveraging results-oriented analyses based on real-time data collection; (2) aligning with the Agency's strategic goal of capacity building in underserved/overburdened communities; and (3) demonstrating achievement of public health protection.

4.1 Performance Measures and Plan

Once funding is awarded, DECP will schedule a kickoff call with the project team to (1) discuss logistics for establishing airborne radionuclide and PurpleAir sensor network, including procurement of air quality monitoring equipment and contractor following the competitive procurement requirements; (2) finalize methods to engage the community in identifying sampling sites and distributing project findings, and (3) review the scope and timing of milestones by Task (Table 2). We will develop a work plan and detailed project timeline that will set the foundation for all work conducted as part of this project. We will then have regular check-in calls with our team and our contractors to track, measure, and report progress towards achieving our expected outputs and outcomes.

4.2 Timeline and Milestones

In Table 2, we describe our expected timeline of completion for the two tasks. For each task, we will complete several milestones focused on establishing the monitoring network, collection, and analysis of the data, and reporting results and communicating findings during this 3-year project.

Table 2. Timeline and completion date of task milestones

Task 1. Airborne Radionuclide Monitoring					
Task 1a. Intellus Air Data Analysis			**Task 1.B. Airborne Radionuclide Sampling and Analysis**		
Milestone	**Timeline**	**Completion**	**Milestone**	**Timeline**	**Completion**
Data collection	11/2022–12/2022	12/31/2022	ID sampling sites	11/2022–12/2022	12/31/2022
Data analysis	01/2023–08/2023	08/15/2023	Acquire/install PM samplers	01/2023	1/31/2023
Report, communicate result	09/2023–09/2024	09/30/2024	Sampling and data collection	02/2023–02/2025	2/28/2025
			Data analysis, report results	03/2025–11/2025	10/31/2025

Task 2: PurpleAir Monitoring Network		
Timeline	**Timeline**	**Completion**
ID monitoring sites; acquire sensors and community training; install sensors and set up dashboard	11/2022; 12/2022; 01/2021	11/30/2022; 12/31/2022; 1/31/2023
Real time monitoring with PurpleAir	02/2023–11/2025	10/31/2025
Data analysis, report results	03/2025–07/2025	07/31/2025
Contractor site monitoring for QA	02/2023–11/2025*	10/31/2025

*Biannually between Feb 2023 and Oct 2025

We will also submit quarterly project reports and a detailed final report to EPA. Quarterly reports will summarize the accomplishments, problems and results generated during the quarter, and the planned activities for the next quarter. The report will also include a list in of expenditures during the quarter, how the funds were spent, and the amount remaining. We will work with EPA to schedule the submission dates of quarterly reports. The final project deliverable will be a final report summarizing the methods and results of each task; the advances achieved from the project, including community engagement and

Table 1. Our expected project outputs and outcomes center around the buildout of a more extensive air quality monitoring network and community education through engagement and capacity building to improve community knowledge and public health protection.

Output Category	Detailed Outputs	Short-term Outcomes	Intermediate Outcomes	Long-term Outcomes
First San I Reservation specific assessment of LANL radiological air sampling data	➢ Analysis, interpretation, and communication of Intellus air data. ➢ Better understanding of the Pueblo's historic radiological exposure ➢ Analysis of large volume of air documents, reports, SOPs, published work, AirNeT, exhaust sampling, total particulate monitoring, regional background radiation monitoring, Thermoluminescent dosimeter, meteorological network data for communication with community	(Change in Knowledge) ➢ Capacity building, expanding programmatic capabilities-radionuclide sampling, real-time PM monitoring ➢ Increased community awareness about airborne pollutants and health effects ➢ Increased community participation, community driven long-term air monitoring ➢ First-time availability of and accessibility to analysis results of long-term radiological sampling data and real-time PM data ➢ Increased access to air quality analysis tools ➢ Community participation and visibility in regional air quality forum ➢ Identification of most serious air pollution related health concerns	(Change in Behavior) ➢ Community action to reduce air pollution burden, e.g., cleaner, alternative woodburning options ➢ Air quality warning system to notify Pueblo members when levels of ambient air pollution pose increased health risks ➢ Regional collaboration for development of effective air pollution mitigation strategies ➢ State or local policy actions, mitigation actions from parties responsible for major air pollution	(Change in Conditions) ➢ Reduction of unpaved road dust and residential woodburning smoke ➢ Reduction in radiological exposure ➢ Reduction in health impacts from pollutant exposure, such as asthma, heart disease and cancer ➢ Improve the spiritual health of the community.
Capacity building for air quality monitoring in an underserved community	➢ Installation of new particulate matter samplers. First time in-house, independent sampling capabilities for community. ➢ Sampling at new locations; monitoring network expansion. ➢ Verification of LANL AirNet data ➢ Pilot work for future independent sampling at larger scale ➢ PurpleAir sensor deployment in each residential area			
Local-scale air pollution characterization	➢ Quantification of air pollution levels and characterization of pollution patterns ➢ Comprehension of spatial and temporal variability of air pollutants near residences ➢ Analysis of meteorological data to assess locations of major emission sources ➢ Identification of pollutants of most concern for targeted policy making and mitigation strategies ➢ Integration of results into TRA			
Real-time monitoring of particulate matter	➢ Real-time identification of severe levels of particulate matter pollutants e.g., wildfire smoke, unpaved road dust, windblown dust, and residential woodfire smoke with PurpleAir. ➢ Ability to warn public of elevated air quality risks in advance ➢ Support physical, mental, and spiritual health of Pueblo members ➢ Real-time identification of indoor air pollution ➢ Infrastructure establishment for real-time communication			
Community engagement	➢ Community participation in siting of PurpleAir sensors ➢ Community training on operation, maintenance, comprehension of PurpleAir network and data, and PM sample collection ➢ Communication of Intellus data analysis results and health impacts ➢ Educating members about types, sources and effects of air pollution, and importance of monitoring ➢ Results to guide community input for cumulative impact analysis			

any mitigation actions taken by the community to reduce health impacts from air quality pollution; and the final cost for each task and overall project. In addition, the final report will outline problems, successes, and lessons learned from the project that could help overcome structural, organizational, or technical obstacles to implementing similar projects in other tribal communities. We will submit the final report to EPA within 120 calendar days of the completion of the period of performance.

5. Programmatic Capability and Past Performance

5.1 Past Performance and Reporting Requirements

Below we provide a description of past performances and reporting requirements for three grant agreements DECP has held with the Bureau of Indian Affairs and EPA.

Bureau of Indian Affairs Resilience Grant on a Health Impact Assessment	
Grant/Cooperative Agreement Number: A19AP00221-01	**Dates Effective:** 8/28/19 – 7/30/21
Past Performance: We successfully conducted a health impact assessment to evaluate the vulnerability of the Pueblo to the combined effects of extreme events and contaminant exposure. To complete this project, we established and completed several milestones that lead to the completion of the final report. The milestones deadlines were staggered and organized in a manner such that each milestone built upon the next to support the completion of the work. The agreement consisted of 2 parts, part -01 (described here) and part -02 which included funds for conference travel. The use of funding from Part -02 of the agreement was delayed due to travel restrictions associated with COVID-19. Therefore, the POP for the entire agreement was extended to 6/22, however, Part -01 was completed in July 2021.	
Reporting Requirements: To successfully manage this agreement, we submitted quarterly performance reports to the Bureau Grant Officer and Bureau Project Officer. In addition to the narrative reports we submitted quarterly financial reports utilizing the SF-425 Federal Financial Report and a final financial report. We also submitted a final technical report and all digital files associated to the with the project to the Bureau Grant Officer and Bureau Project Officer and the end of the agreement. This project was initially effective in August of 2019. DECP experienced significant contracting and staffing delays due to COVID-19 and was a little delayed in submitting the initial sets of quarterly reports. After discussing these issues with the Bureau Grant Officer, DECP submitted all required quarterly reports.	

EPA Cooperative Agreement with Pueblo de San Ildefonso on Water Quality Monitoring	
Grant/Cooperative Agreement Number: 01F80501	**Dates Effective:** 01/01/2021-12/31/2021
Past Performance: Under an EPA Cooperative Agreement, we carried out our program to maintain, protect, and improve the water quality of our rivers, lakes, streams, groundwater, and other waterbodies, and prevented the degradation of unimpaired water bodies. Activities under the agreement included sampling surface water quality and submitted a water quality assessment report.	
Reporting Requirements: We submitted quarterly performance reports within 30 days after the reporting period that provided a comparison of actual accomplishments to the project outputs/outcomes and, where applicable, reasons established outputs/outcomes were not met, and explanation of cost overruns or high-unit costs.	

EPA Grant Agreement General Assistance Program	
Grant/Cooperative Agreement Number: 01F47201	**Dates Effective:** 10/01/2018-09/30/2019
Past Performance: The EPA Grant focused on capacity building to administer environmental regulatory programs and provide technical assistance from EPA to Indian Tribal governments to address environmental issues.	
Reporting Requirements: We submitted quarterly progress reports to the EPA using the GAP Online, other reporting requirements were no applicable due to the planned budget amount.	

5.2 Staff Expertise

DECP will lead the project. DECP aims to protect and preserve the natural environment and the cultural resources of the Pueblo, and quantitatively and qualitatively assess risks to the health and welfare of the Tribal Community, including the review and oversight of air quality. Raymond Martinez, the DECP's Environmental Director, will act as the Lead Principal Investigator. Mr. Martinez is a Tribal member and Tribal Council Representative of the Pueblo de San Ildefonso. As the current Director, one of his top

priorities is to monitor contamination, including air quality, and provide accurate and frequent communications to Pueblo residents and the Tribal Council.

Mr. Martinez will be supported by Michael Chacón and Thomas Martinez. Mr. Chacón, the Technical Reviewer/Quality Assurance Manager, has over 25 years' experience in the environmental field. He will provide technical support in data quality and document review, and he will be responsible for all quality assurance (QA) and quality control (QC) aspects of the project. Mr. Thomas Martinez, DECP environmental technical assistant, will support DECP on data collection, including collect air quality samples as part of his regular duties collecting LANL air filters, and sending samples to an analytical laboratory quarterly for gamma-emitting nuclide analysis, gross alpha and gross beta measurements, and radionuclide analysis. Biographies are available in attachment.

Budget

In this section, we provide a detailed description of our budget shown in Table 3 and SF-424A.

Personnel

Salaries for partial Full-Time Employees (FTEs) for the positions of Environmental Director and Office Manager, who will have the responsibility of providing technical and administrative oversight, and grant and financial management and quality assurance oversight for the workplan. Salary for partial FTE for the position of Technical Reviewer/QA Manager, who will provide technical support in data and document review and Environmental Technical Assistant, who will maintain samplers and sensors, and collect and send samples to commercial laboratory.

Fringe Benefits

Fringe benefits of 29.44% include appropriate taxes, health insurance benefits that are paid 80/20 (Pueblo/employee) for those participating, dental and vision insurance, short- and long-term disability, supplemental life insurance, and a 4% contribution by the Pueblo to a 401(k) plan for participating employees (Figure 2 and Table 3).

Figure 2. Fringe Benefits

Benefits	%/Cost
Federal Insurance Contributions Act (FICA)	7.65%
Workers Compensation Rate per Employee	0.46/0.46/0.16
State Unemployment Tax Act (SUTA)	0.49%
Retirement	4.00%
Dental	$328.44
Vision	$89.88
Life and Disability Insurance	0.1%
Health Insurance	$7,137.44

Travel

No travel for DECP staff is included in this proposal.

Equipment

For Task 1, we plan to procure three Tisch Environmental Hi-Volume Polyurethane Foam PLUS Sampler for deployment throughout the community.

Supplies

For Task 1, we will procure air filters for the PLUS sampler. For Task 2, we will procure 25 PurpleAir sensors, of which 18 will be deployed in our community housing areas, 2 will be collocated NMED Met-One BAM-1020 PM2.5 sampler at the Santa Fe Airport, and 5 will be used as backups. We will also procure spare parts (e.g., extension cords, screws/brackets, poles). Due to poor internet, we will also provide mobile hotspots at all community sites to ensure we can collect real-time data

Other

Using overnight shipping, we will send the radionuclide samples to the Commercial Analytical Laboratory. We will also provide Wi-Fi to homes that currently lack internet access to allow for real time monitoring; we estimate is about half of the homes in our housing areas.

Contractual

We will procure contractors following the competitive procurement requirements to support the installation of radionuclide monitors, installation of purple air sensors, develop the dashboard, and other tasks as needed. We will also procure commercial analytical laboratory services for analysis of gamma, gross alpha/beta, Cs-137, Sr-90, U-238, Ra-226, Pu-239/240.

Indirect Costs

To cover the costs of accounting, property, procurement, and personnel, indirect costs were calculated, excluding contractual and equipment costs, as provided in the Tribe's negotiated Indirect Cost Rate. These costs were calculated at an approved rate of 23.38%.

Table 3. Budget table

Line Item & Itemized Cost	EPA Funding
Personnel	
1) Environmental Director @ $28.19/hour * 6,240 hours * 20%	$35,181.12
2) Office Manager @ $19.48/hour * 6,240 hours * 6%	$7,293.31
3) Technical Reviewer/QA @ $24.73/hour * 6,240 hours * 20%	$30,863.04
4) Field Technician @ $20.00/hour * 6,240 hours * 45%	$56,160.00
TOTAL PERSONNEL	**$129,497.47**
Fringe Benefits	
29.44% of salary (includes taxes, health =insurance benefits, 401(k) plan contribution)	$38,120.17
TOTAL FRINGE BENEFITS	**$38,120.17**
Equipment	
3 PM Hi-Volume Polyurethane Foam PLUS Samplers for radionuclide sampling @9,000/unit * 3 units	$27,000.00
TOTAL EQUIPTMENT	**$27,000.00**
Supplies	
Air Filters for Radionuclide Sampling @ $550/box * 2 boxes	$1,100.00
Purple Air Sensors @ $300/unit * 25 units	$7,500.00
Spare Purple Air and parts for installation	$3,000.00
Mobile Hotspots to Provide Internet to Purple Air @ $200/unit * 18 units	$3,600.00
TOTAL SUPPLIES	**$15,200.00**
Contractual	
Contractor Support for Task 1 and Task 2 Implementation	$200,000.00
Commercial Analytical Laboratory Services	$27,972.00
TOTAL CONTRACTUAL	**$227,972.00**
Other	
Overnight shipping of radionuclide samples to laboratory @ $100/month * 8 months	$800.00
WiFi data plan @ $50/month * 35 months * 9 housing units	$16,200.00
TOTAL OTHER	**$17,000.00**
Indirect charges	
Indirect costs 4 personnel (at Negotiated Indirect Cost Rate of 23.38%)	$30,276.51
TOTAL INDIRECT	**$30,276.51**
TOTAL FUNDING	**$485,066.15**
TOTAL PROJECT COST	**$485,066.15**